Environmental Science

DETERMINATION OF LEAD CONTENT IN EGGSHELLS FOUND ON A CONTAMINATED LAKE IN WISCONSIN

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Rush Lake, a 1300-hectare prairie pothole located in east central Wisconsin, was once a significant breeding territory for migratory waterfowl. Bird populations have vastly decreased over the past 150 years because the lake has no longer been able to support these populations due to severe lead contamination. Extensive waterfowl hunting has left an accumulation of around 600,000 kg of lead shot in the top meter of sediment, which has remained there since its use was outlawed in 1984. Lead, both dissolved in the sediment and in its pellet form, is easily accessible to waterfowl. This study was designed to examine the possibility of lead contamination of the migratory birds inhabiting the lake. Eggshells from several species of waterfowl were collected, treated by dry ashing, and examined using atomic absorption spectroscopy. Our results show that compared to chicken eggs, assumed to be uncontaminated with lead, there is no significant difference in the lead concentration of the Red Head Duck, the Marsh Wren, the Forster's Tern, or the Redwing Blackbird eggshell samples. The Yellow-Headed Blackbird samples did show significant difference to that of the chicken eggs.